Demand Response Research Center

Contract #: 500-03-026
Contractor: Lawrence Berkeley National Laboratory
Contract Amount: $7,999,970
Contractor Project Manager: Mary Ann Piette (510) 486-6286
Commission Contract Manager: David Michel III (916) 651-9864
Status: Active

Project Description:
This project will develop a "Demand Response Research Center" (DRRC) which will be multi-institutional in concept and operation. Lawrence Berkeley National Laboratory (LBNL) will host the DRRC and guide its development as well as provide technical, operational and planning duties. The DRRC will solicit stakeholder input and adopt research topics.

To ensure that the R&D planning is well balanced and relevant, planning will begin with an evaluation based on the following information:

- What State policies does DRRC research intend to address?
- What is the range of demand response research topics considered?
- How should research be prioritized?
- Who should provide technical guidance and how should this group function?

Research at the DRRC will follow PIER policy by addressing key questions before beginning each project. The research planning process will maintain the flexibility to adapt to changes from outside research methods and results. The DRRC will consider a research planning process that combines scenario analysis with an assessment of current demand response Research and Development and gap analysis. The DRRC will complement, reinforce and leverage current PIER Energy Systems Integration, Buildings, and Industrial Program research to avoid overlap.

The research agenda for the DRRC will be carefully coordinated with the evaluations of utility demand response programs and tariffs in California, throughout the nation and beyond, many of which are experimental in nature. Results of these experiments are expected to provide critical information on the feasibility and effectiveness of various demand response programs, tariffs, technologies, and information systems. In particular, the DRRC will closely track the work and results of the three Demand Response Working Groups established under CPUC Rule-making 02-06-001.

A major element of the DRRC will be the strong market connection developed for each and every project. A concerted effort will be made to involve a variety of stakeholders in DRRC planning and on the actual research teams. Members of the Partners Planning Committee are likely to be representatives of the most direct stakeholders of the DRRC, including:

- Control, Metering and Information System Developers.
- Aggregators and Program Implementers.
- Utilities.

The overall technical goal of this project is to facilitate greater demand response in California to prevent future energy crises.

The specific, technical objectives upon which this project's success will be evaluated are:

- Develop new demand response techniques and technologies.
- Valuate and demonstrate where new techniques and technologies are applicable.
- Evaluate demand response systems for utilities, customers, and aggregators.
- Evaluate demand response decision making and technology adoption perspectives.

The overall economic/cost goals of this project are as follows:

- Prevention of future electricity crises.
- Reduction of average electricity prices.
- Promote price responsiveness including equity, through cost of service pricing, and customer control of electricity usage and bills.

This project supports the PIER Program objectives:

- Improve the energy costs and value of California's electricity through the improvement of demand response methods.
- Improve the reliability/quality of California's electricity by reducing electricity use when the electric grid is constrained.

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Proposed Outcomes:

The DRRC will focus on the following activities:

1. Create a roadmap for demand response in California by identifying and conducting the R&D needed to solve practical and technical demand response issues.
2. Establish multi-institutional partnerships to broaden the expertise of DRRC researchers and leverage funding.
3. Foster connections with stakeholders through outreach efforts.
4. Sustain long-term attention to demand response research topics.
5. Conduct demand response related research, development, demonstrations, and technology transfer.

Project Status:

The project is active and is expected to be completed by June, 2008.
The following has been accomplished:
Established the "Demand Response Research Center" hosted by Lawrence Berkeley National Laboratory.

- Co-sponsored PIER-Energy Systems Integration Demand Response Symposium.
- Developed the Draft Scoping Study on future research.
- Coordinated with other demand response research efforts: Center for the Study of Electricity Markets, Consortium for Electric Reliability Technology Solutions, Demand Response Enabling Technology Development.
- Conducted outreach with potential partners.

Conducted research activities under three projects

- Performance Platform: Case Study Analysis for Automated DR in Large Facilities.
- Program and Tariff Analysis.
- Demand Shifting with Thermal Mass.

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